

Claims

1 A plasma processing apparatus, comprising:
an evacuated chamber for containing a plasma,
a radio frequency source for exciting said plasma using radio
frequency energy, and

5 a re-entrant vessel positioned within the chamber to shape and
make more uniform said plasma contained within the chamber,
wherein the re-entrant vessel is movable within the chamber in
at least a first direction to adjust the plasma uniformity, and the re-entrant
vessel includes extensions of adjustable shape or position, which may be
10 altered to further adjust and unify said plasma within said chamber.

2. A plasma processing apparatus, comprising
an evacuated chamber for containing a plasma,
a radio frequency source for exciting said plasma using radio
frequency energy,

5 a re-entrant vessel, positioned within the chamber to shape and
make more uniform said plasma contained within the chamber, and
one or more magnets, positioned within the re-entrant vessel.

3. The apparatus of claim 2, further comprising an actuator for moving said magnets.

4. The apparatus of claim 1, further comprising a radio frequency emitting coil within said re-entrant vessel.

5. The apparatus of claim 1 or 2 wherein said re-entrant vessel is not evacuated.

6. An ion optic grid, comprising
a plate having first and second surfaces and defining a plurality
of parallel apertures extending between said first and second surfaces, and
tuning features incorporated into the plate, altering one of the
surfaces and surrounding an aperture.

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7. The ion optic grid of claim 6 wherein one said tuning feature reduces the diameter of the associated aperture.

8. The ion optic grid of claim 6 wherein one said tuning feature decreases or increases the length of the associated aperture.

9. A radio frequency coil for a plasma processing chamber,
comprising,

a winding of an electrical conductor to be driven by an RF
source, and

5 a flux concentrator positioned adjacent to the winding in at
least one angular region thereof.